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Edited by  
NORMAN J. KING.

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HON. H. H. COLLINS, MINISTER  
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# The Cane Growers' Quarterly — Bulletin —

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## Varietal Trials—1949 Season.

BY NORMAN J. KING.

THE results of several of the 1949 season trials were published in January, 1950, number of the Quarterly Bulletin, but owing to the protracted nature of the harvesting season the majority were too late for inclusion in that issue. These are given below and conclusions are drawn in each case. These results are of considerable importance to the canegrowers in the various districts since they set out the performance of many new canes under trial as compared with district standards.

The thanks and appreciation of the Bureau are due to the many growers who participated in this valuable work and their co-operation is hereby acknowledged.

**G. T. Pringle, Miallo, Mossman.**

**Soil Type.**—Grey clay loam.

**Nature of Crop.**—Plant.

**Age of Crop.**—17 Months.

**Harvested.**—October, 1949.

### SUMMARY OF CROP YIELDS.

| Variety. |    |    |    |    |    |    |    | Cane per Acre. | C.C.S. in Cane. |
|----------|----|----|----|----|----|----|----|----------------|-----------------|
|          |    |    |    |    |    |    |    | Tons.          | Per cent.       |
| Q.50     | .. | .. | .. | .. | .. | .. | .. | 17.33          | 19.01           |
| D.271    | .. | .. | .. | .. | .. | .. | .. | 15.30          | 17.99           |
| Comus    | .. | .. | .. | .. | .. | .. | .. | 14.86          | 18.98           |
| Trojan   | .. | .. | .. | .. | .. | .. | .. | 12.69          | ..              |
| Eros     | .. | .. | .. | .. | .. | .. | .. | 10.48          | 18.11           |
| D.225    | .. | .. | .. | .. | .. | .. | .. | 9.75           | 18.84           |

### DISCUSSION.

Germination of the various canes ranged from 81 to 88 per cent.. Owing to the dry season early growth was slow and stooling was poor. Q.50 and D.271 were the best varieties in the early stages but none was impressive at any period, and a high variability existed from plot to plot of the same variety. So irregular were the tonnage yields that no analysis of variance was carried out and in consequence no conclusions may be drawn from the trial. However the high sugar content of Q.50 is a valuable indicator of the potentialities of this variety.

**J. Hardie, Whiterock, Hambledon.**

Soil Type.—Red brown loam.

Nature of Crop.—Plant.

Age of Crop.—13 months.

Harvested.—July, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.      | Cane per Acre. | C.C.S. in Cane. | Sugar per Acre. |
|---------------|----------------|-----------------|-----------------|
|               | Tons.          | Per cent.       | Tons.           |
| Q.50 .. .. .  | <b>42.42</b>   | 13.84           | <b>5.87</b>     |
| Q.45 .. .. .  | 37.02          | 14.21           | 5.26            |
| D.225 .. .. . | 33.44          | 14.63           | 4.89            |
| D.271 .. .. . | 32.46          | <b>15.33</b>    | 4.98            |
| Q.49 .. .. .  | 31.61          | 13.72           | 4.34            |
| Q.44 .. .. .  | 30.40          | 13.15           | 4.00            |
| Q.47 .. .. .  | 28.51          | 14.01           | 4.00            |

**DISCUSSION.**

Good soil moisture was present at planting time and germination of the varieties varied from 80 to 95 per cent., Q.50 being the best striker in the trial. Q.45 made the best early growth but by November, Q.50 and Q.47 were the leading canes under dry conditions. After the wet season Q.50 and D.271 were both showing 5 feet 6 inches of cane with Q.47 a close third. At harvest time Q.50 confirmed its early promise but Q.45 weighed surprisingly heavy. In terms of sugar per acre Q.50 was significantly superior to all others and suggests that it may be a valuable cane for this area.

**Sugar Experiment Station, Meringa, Block A.2.**

Soil Type.—Grey clay loam.

Nature of Crop.—First ratoon.

Age of Crop.—12½ months.

Harvested.—October–November, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.  | Plant Crop.            |                         | First Ratoon Crop.     |                         | Summary.             |                       |
|-----------|------------------------|-------------------------|------------------------|-------------------------|----------------------|-----------------------|
|           | Average Cane per Acre. | Average C.C.S. in Cane. | Average Cane per Acre. | Average C.C.S. in Cane. | Total Cane per Acre. | Total Sugar per Acre. |
|           | Tons.                  | Per cent.               | Tons.                  | Per cent.               | Tons.                | Tons.                 |
| E.275 ..  | 39.36                  | 16.32                   | <b>32.28</b>           | 17.61                   | 71.64                | 12.34                 |
| Trojan .. | <b>42.99</b>           | <b>18.58</b>            | 30.59                  | <b>18.99</b>            | <b>73.58</b>         | <b>14.02</b>          |
| E.269 ..  | 38.57                  | 17.40                   | 29.25                  | 18.36                   | 67.82                | 12.07                 |
| E.247 ..  | 35.30                  | 15.64                   | 27.65                  | 17.39                   | 62.95                | 10.81                 |
| E.209 ..  | 34.50                  | 18.01                   | 27.02                  | 18.63                   | 61.52                | 11.36                 |
| E.230 ..  | 35.80                  | 17.20                   | 25.98                  | 18.24                   | 61.78                | 11.19                 |

**DISCUSSION.**

After the trash from the plant crop was raked and burnt the soil was too hard for grubbing until January after rain had fallen. Ratoons were a reasonable stand, E.275 being first away and Trojan last. Growing conditions were good between January and May and both E.247 and E.269 lodged. Trojan as usual made good late growth and succeeded in overhauling all except E.275. Its superior C.C.S. at harvest gave it a slight lead in sugar per acre. The summary of plant and ratoon crops showed that in sugar per acre Trojan exceeded all other varieties with E.275 and E.269 in second and third places.

**Sugar Experiment Station, Meringa, Block A.3.**

Soil Type.—Grey-brown loam.

Nature of Crop.—Plant.

Age of Crop.—12½ months.

Harvested.—September, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.          | Cane per Acre. | C.C.S. in Cane. | Sugar per Acre. |
|-------------------|----------------|-----------------|-----------------|
|                   | Tons.          | Per cent.       | Tons.           |
| 41M.Q.779 .. .. . | <b>44.29</b>   | 17.81           | <b>7.89</b>     |
| F.304 .. .. .     | 37.23          | 16.19           | 6.03            |
| F.335 .. .. .     | 34.50          | 16.74           | 5.77            |
| Trojan .. .. .    | 32.37          | <b>18.26</b>    | 5.91            |
| F.343 .. .. .     | 32.22          | 17.47           | 5.63            |

**DISCUSSION.**

In this Latin Square trial germination was poor to fair. The strike of F.343 was only 65 per cent. whilst Trojan was as high as 85 per cent. The three months following planting were very dry with a total rainfall of only 53 points. Good rain in December resulted in a rapid recovery and good growth followed the successive rains. The variety 41M.Q.779 was impressive throughout the crop and F.304 was vigorous and well stoolled. At harvest time these two canes cropped most heavily and they also topped the list in sugar per acre. The figure of 7.89 tons of sugar per acre was most impressive for a one year crop.

**Fox and Co., Gordonvale.**

Soil Type.—Red brown loam.

Nature of Crop.—Plant.

Age of Crop.—14 months.

Harvested.—July, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.           | Cane per Acre. | C.C.S. in Cane. | Sugar per Acre. |
|--------------------|----------------|-----------------|-----------------|
|                    | Tons.          | Per cent.       | Tons.           |
| Q.50 .. .. .       | <b>33.30</b>   | 12.89           | 4.29            |
| 41M. Q.779 .. .. . | 32.63          | 12.76           | 4.16            |
| Cato .. .. .       | 27.40          | 16.03           | 4.39            |
| D.221 .. .. .      | 26.84          | 17.41           | <b>4.67</b>     |
| D.271 .. .. .      | 24.19          | <b>17.87</b>    | 4.32            |

**DISCUSSION.**

Planting conditions for this trial were not favourable and germination ranged from 74 to 86 per cent. The strike was slow owing to excessive cover but D.221 was the most regular and even. During the dry spring Q.50 and 41M.Q.779 withstood the harsh conditions best and they maintained a lead during succeeding months. When weather conditions improved these varieties made best progress and at harvest time were significantly superior to the others. Q.50 was distributed to growers in the Mulgrave area in 1949 and promises to be a valuable cane on the poorer and drier soils of the area.

# DISPERSED VARIETAL TRIALS ON FARMS OF I. M. E. HONEYCOMBE AND HALLER AND SONS.

I. M. E. Honeycombe, Klondyke, Ayr.

Soil Type.—Grey alluvial loam.

Nature of Crop.—Plant.

Age of Crop.—17½ months.

Harvested.—September, 1949.

## SUMMARY OF CROP YIELDS.

| Variety.       | Cane per Acre. | C.C.S. in Cane. | Sugar per Acre. |
|----------------|----------------|-----------------|-----------------|
|                | Tons.          | Per cent.       | Tons.           |
| Trojan .. .. . | 87.61          | 14.42           | 12.63           |
| B.331 .. .. .  | 79.73          | 13.90           | 11.08           |
| E.K.28 .. .. . | 64.72          | 15.00           | 9.71            |
| Q.44 .. .. .   | 60.40          | 10.01           | 6.05            |
| S.J.16 .. .. . | 60.60          | 14.57           | 8.83            |

Haller and Sons, Iona, Home Hill.

Soil Type.—Grey alluvial silt loam.

Nature of Crop.—Plant.

Age of Crop.—19 months.

Harvested.—December, 1949.

## SUMMARY OF CROP YIELDS.

| Variety.       | Cane per Acre. | C.C.S. in Cane. | Sugar per Acre. |
|----------------|----------------|-----------------|-----------------|
|                | Tons.          | Per cent.       | Tons.           |
| Trojan .. .. . | 40.12          | 16.98           | 6.81            |
| B.331 .. .. .  | 37.50          | 14.68           | 5.51            |
| E.K.28 .. .. . | 39.50          | 15.35           | 6.06            |
| Q.44 .. .. .   | 36.12          | 14.70           | 5.31            |
| S.J.16 .. .. . | 33.38          | 16.40           | 5.47            |

## SUMMARY OF RESULTS ON TWO FARMS.

| Variety.       | Cane per Acre. | Average Sugar per acre. |
|----------------|----------------|-------------------------|
|                | Tons.          | Tons.                   |
| Trojan .. .. . | 63.87          | 9.72                    |
| B.331 .. .. .  | 58.62          | 8.29                    |
| E.K.28 .. .. . | 52.11          | 7.88                    |
| Q.44 .. .. .   | 48.26          | 5.68                    |
| S.J.16 .. .. . | 46.98          | 7.15                    |

## DISCUSSION.

On both farms where this dispersed trial was planted germination was good and a regular stand of all varieties developed. In the early stages of growth E.K.28 had a light stool while Trojan stood heavily and was most impressive. S.J.16 grew well but was outclassed under the conditions of this planting. On one of the farms the trial lodged in August and a certain amount of grub damage was noticed. The variability of the plots was so high in the two sections of the trial that no significance can be attached to the yields. However all canes with the exception of Q.44 gave favourable returns of sugar per acre.

**DISPERSED VARIETAL TRIAL ON KALAMIA ESTATE.  
Mr. F. A. JENSEN AND Mrs. M. T. MARSHALL.  
Kalamia Estate, Ayr.**

Soil Type.—Grey alluvial loam.

Nature of Crop.—First ratoon.

Age of Crop.—9½ months.

Harvested.—July, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety. |    |    |    |    |    |    |    | Cane per Acre. | C.C.S. in Cane. |
|----------|----|----|----|----|----|----|----|----------------|-----------------|
|          |    |    |    |    |    |    |    | Tons.          | Per cent.       |
| Q.28     | .. | .. | .. | .. | .. | .. | .. | 41.84          | 14.0            |
| Q.50     | .. | .. | .. | .. | .. | .. | .. | <b>60.73</b>   | 13.8            |
| Q.45     | .. | .. | .. | .. | .. | .. | .. | 50.53          | 15.0            |
| Eros     | .. | .. | .. | .. | .. | .. | .. | 52.33          | <b>15.7</b>     |
| E.K.28   | .. | .. | .. | .. | .. | .. | .. | 39.44          | 12.4            |

**F. A. Jensen, Brandon, via Ayr.**

Soil Type.—Grey alluvial loam.

Nature of Crop.—First ratoon.

Age of Crop.—12½ months.

Harvested.—October, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety. |    |    |    |    |    |    |    | Cane per Acre. | C.C.S. in Cane. |
|----------|----|----|----|----|----|----|----|----------------|-----------------|
|          |    |    |    |    |    |    |    | Tons.          | Per cent.       |
| Q.28     | .. | .. | .. | .. | .. | .. | .. | <b>71.29</b>   | 14.61           |
| Q.50     | .. | .. | .. | .. | .. | .. | .. | 48.02          | 15.17           |
| Q.45     | .. | .. | .. | .. | .. | .. | .. | 56.28          | 17.51           |
| Eros     | .. | .. | .. | .. | .. | .. | .. | 46.52          | 16.06           |
| E.K.28   | .. | .. | .. | .. | .. | .. | .. | 27.58          | <b>17.81</b>    |

**Mrs. M. T. Marshall, Home Hill.**

Soil Type.—Alluvial silt loam.

Nature of Crop.—First ratoon.

Age of Crop.—15 months.

Harvested.—September, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety. |    |    |    |    |    |    |    | Cane per Acre. | C.C.S. in Cane. |
|----------|----|----|----|----|----|----|----|----------------|-----------------|
|          |    |    |    |    |    |    |    | Tons.          | Per cent.       |
| Q.28     | .. | .. | .. | .. | .. | .. | .. | <b>51.96</b>   | 14.98           |
| Q.50     | .. | .. | .. | .. | .. | .. | .. | 48.02          | 16.05           |
| Q.45     | .. | .. | .. | .. | .. | .. | .. | 43.71          | 15.95           |
| Eros     | .. | .. | .. | .. | .. | .. | .. | 42.21          | 15.78           |
| E.K.28   | .. | .. | .. | .. | .. | .. | .. | 29.46          | <b>16.50</b>    |





## SUMMARY OF RESULTS ON TWO FARMS.

| Variety.     | Plant Crop.            |                         | First Ratoon Crop.     |                         | Summary.             |                       |
|--------------|------------------------|-------------------------|------------------------|-------------------------|----------------------|-----------------------|
|              | Average Cane per Acre. | Average Sugar per Acre. | Average Cane per Acre. | Average Sugar per Acre. | Total Cane per Acre. | Total Sugar per Acre. |
|              | Tons.                  | Tons.                   | Tons.                  | Tons.                   | Tons.                | Tons.                 |
| Q.50* .. ..  | 44.74                  | 7.30                    | 23.96                  | 3.70                    | 68.70                | 11.00                 |
| Q.45 .. ..   | 40.84                  | 6.44                    | 20.63                  | 3.10                    | 61.47                | 9.54                  |
| Q.28 .. ..   | 41.27                  | 5.98                    | 19.84                  | 3.20                    | 61.11                | 9.18                  |
| Comus .. ..  | 37.75                  | 5.79                    | 14.11                  | 2.12                    | 51.86                | 7.91                  |
| Trojan .. .. | 39.86                  | 6.60                    | 13.70                  | 2.16                    | 53.56                | 8.76                  |

## DISCUSSION.

Ratoon conditions for this trial on two farms were excellent and all varieties established a good stand. Subsequent growth was fair until December rains when all varieties shot away. The three "Q" canes established an early lead and stooling was far superior to that of Trojan and Comus. This lead was maintained throughout the growing season and at harvest Q.50, Q.28 and Q.45 yielded appreciably heavier crops than the other varieties. In the summary of the plant and first ratoon crops Q.50 produced 11 tons of sugar per acre—a remarkably good performance for this district.

## Messrs. Butt Bros., Oakenden.

Soil Type.—Grey sandy loam.

Nature of Crop.—Plant.

Age of Crop.—16 months.

Harvested.—December, 1949.

## SUMMARY OF CROP YIELDS.

| Variety.     |    |    |    |    |    |    | Cane per Acre. | C.C.S. in Cane. |
|--------------|----|----|----|----|----|----|----------------|-----------------|
|              |    |    |    |    |    |    | Tons.          | Per cent.       |
| C.P.29/116*  | .. | .. | .. | .. | .. | .. | 34.01          | 13.94           |
| Q.50 .. ..   | .. | .. | .. | .. | .. | .. | 29.40          | 6.20*           |
| Co.290 .. .. | .. | .. | .. | .. | .. | .. | 25.01          | 6.15*           |
| Q.28 .. ..   | .. | .. | .. | .. | .. | .. | 24.11          | 7.51*           |
| B.174 .. ..  | .. | .. | .. | .. | .. | .. | 19.65          | 10.77*          |

\* Red Rot and Rind disease present.

## DISCUSSION.

Good planting conditions obtained for the start of this trial and germinations ranging from 90 to 94 per cent. were obtained. C.P.29/116 was first away with B.174 a close second but all varieties subsequently developed a good stand. As growth proceeded C.P.29/116 and Q.50 had the best stooling but B.174 was vigorous at all times. C.P.29/116 arrowed heavily in June and some side-shooting was apparent. The very dry spring and the late harvesting date resulted in a high incidence of red rot, particularly after the October rains. B.174 almost died out and over 90 per cent of the Co.290 was affected. The results at harvest show the effect of this disease on the sugar content and the surprisingly good result from C.P.29/116 suggests the possible value of this variety for late harvesting in such a season. Its resistance to red rot and its ability to retain weight even six months after arrowing are valuable features.

**Sugar Experiment Station, Mackay, Block B.2.**

**Soil Type.**—Coarse sandy loam.

**Nature of Crop.**—First ratoon.

**Age of Crop.**—11½ months.

**Harvested.**—November, 1949.

### SUMMARY OF CROP YIELDS.

| Variety. | Plant Crop.            |                 | First Ratoon Crop.     |                 | Summary.             |                       |
|----------|------------------------|-----------------|------------------------|-----------------|----------------------|-----------------------|
|          | Average Cane per Acre. | C.C.S. in Cane. | Average Cane per Acre. | C.C.S. in Cane. | Total Cane per acre. | Total Sugar per Acre. |
|          | Tons.                  | Per cent.       | Tons.                  | Per cent.       | Tons.                | Tons.                 |
| E.129 .. | 31.70                  | 17.32           | 29.06                  | 12.92           | 61.38                | 9.31                  |
| E.119 .. | 30.12                  | 15.63           | 25.60                  | 10.66           | 55.72                | 7.43                  |
| Q.28 ..  | 28.99                  | 16.66           | 23.41                  | 12.86           | 52.40                | 7.87                  |
| E.135 .. | 28.17                  | 17.11           | 23.34                  | 13.40           | 51.51                | 7.96                  |
| E.122 .. | 24.96                  | 16.41           | 22.06                  | 10.54           | 47.02                | 6.42                  |
| E.124 .. | 24.83                  | 16.12           | 21.18                  | 13.96           | 46.01                | 6.96                  |

## DISCUSSION.

Good ratooning followed the grubbing of this trial on the Experiment Station although Q.28 was the slowest of the six varieties. The five "E" seedlings had performed well in previous trials and they established an early lead over Q.28. However later growth conditions allowed the standard cane to catch up somewhat and certain of the "E" seedlings developed a percentage of red rot. At harvest E.129 was the outstanding variety with only an odd stick showing red rot. In the aggregate of two crops this cane produced 9.31 tons of sugar as compared with 7.87 tons for Q.28. E.119, the second best cane in the ratoon crop side shot very badly and did not impress in general appearance.

DISPERSED VARIETAL TRIAL ON FARMS OF H. GRANT,  
ESTATE OF J. TREVASKIS AND J. F. WALZ.

H. Grant, Glenella.

**Soil Type.**—Grey sandy loam.

**Nature of Crop.**—First ratoon.

Age of Crop.—11 months.

Harvested.—November, 1949.

### SUMMARY OF CROP YIELDS.

| Variety.           | Cane per Acre. | C.C.S. in Cane. |
|--------------------|----------------|-----------------|
|                    | Tons.          | Per cent.       |
| Q.50 .. .. .       | 16-64          | 8-13            |
| P.O.J.2878 .. .. . | 17-86          | 17-09           |
| Q.28 .. .. .       | 9-57           | 10-58           |
| Q.44 .. .. .       | 11-58          | 15-02           |
| Trojan .. .. .     | 10-39          | 17-07           |
| M.1900 .. .. .     | 8-74           | 13-16           |

**Estate of G. Trevaskis, Farleigh.**

Soil Type.—Brown sandy loam.

Nature of Crop.—First ratoon.

Age of Crop.—10 months.

Harvested.—October, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.           | Cane per Acre. |  | C.C.S. in Cane. |  |
|--------------------|----------------|--|-----------------|--|
|                    | Tons.          |  | Per cent.       |  |
| Q.50 .. .. .       | 24.10          |  | 18.05           |  |
| P.O.J.2878 .. .. . | 22.70          |  | 16.47           |  |
| Q.28 .. .. .       | 19.98          |  | 16.45           |  |
| Q.44 .. .. .       | 10.98          |  | 16.83           |  |
| Trojan .. .. .     | 10.78          |  | 18.01           |  |
| M.1900 .. .. .     | 13.88          |  | 15.68           |  |

**J. F. Walz, Mirani, via Mackay.**

Soil Type.—Grey sandy loam.

Nature of Crop.—First ratoon.

Age of Crop.—15 months.

Harvested.—December, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.           | Cane per Acre. |  | C.C.S. in Cane. |  |
|--------------------|----------------|--|-----------------|--|
|                    | Tons.          |  | Per cent.       |  |
| Q.50 .. .. .       | 16.90          |  | Not available   |  |
| P.O.J.2878 .. .. . | 13.14          |  | Not available   |  |
| Q.28 .. .. .       | 11.18          |  | Not available   |  |
| Q.44 .. .. .       | 7.52           |  | Not available   |  |
| Trojan .. .. .     | 7.24           |  | Not available   |  |
| M.1900 .. .. .     | 2.54           |  | Not available   |  |

**SUMMARY OF RESULTS ON TWO FARMS. \***

| Variety.           | Plant Crop.            |                         | First Ratoon Crop.     |                         | Summary of 2 Crops.  |                       |
|--------------------|------------------------|-------------------------|------------------------|-------------------------|----------------------|-----------------------|
|                    | Average Cane per Acre. | Average Sugar per Acre. | Average Cane per Acre. | Average Sugar per Acre. | Total Cane per Acre. | Total Sugar per Acre. |
|                    | Tons.                  | Tons.                   | Tons.                  | Tons.                   | Tons.                | Tons.                 |
| Q.50 .. .. .       | 35.92                  | 5.78                    | 20.37                  | 2.85                    | 56.29                | 8.63                  |
| P.O.J.2878 .. .. . | 30.85                  | 5.15                    | 20.03                  | 3.36                    | 50.88                | 8.51                  |
| Q.28 .. .. .       | 31.09                  | 5.27                    | 14.78                  | 2.15                    | 45.87                | 7.42                  |
| Q.44 .. .. .       | 29.90                  | 4.18                    | 11.28                  | 1.80                    | 41.27                | 5.98                  |
| Trojan .. .. .     | 29.31                  | 5.16                    | 10.59                  | 1.86                    | 39.90                | 7.04                  |
| M.1900 .. .. .     | 29.07                  | 4.51                    | 11.31                  | 1.66                    | 40.38                | 6.17                  |

\* The summary does not include the results from Walz's farm owing to the absence of C.C.S. figures.

# **DISPERSED VARIETAL TRIAL ON FARMS OF JARROTT BROS. AND A. WELSH.**

**Jarrott Bros., Branchcombe, Mackay.**

Soil Type.—Sandy alluvial.

Nature of Crop.—First ratoon.

Age of Crop.—13 months.

Harvested.—December, 1949.

## **SUMMARY OF CROP YIELDS.**

| Variety.           | Cane per Acre. | C.C.S. in Cane. |
|--------------------|----------------|-----------------|
|                    | Tons           | Per cent.       |
| Q.50 .. .. .       | <b>33.30</b>   | 9.35            |
| P.O.J.2878 .. .. . | <b>21.79</b>   | 15.27           |
| Q.45 .. .. .       | <b>21.79</b>   | 13.54           |
| Q.28 .. .. .       | <b>21.04</b>   | 9.39            |
| Trojan .. .. .     | <b>18.41</b>   | <b>15.58</b>    |
| Q.44 .. .. .       | <b>18.22</b>   | 10.98           |

# **A. Walsh, Mia Mia, Mackay.**

Soil Type.—Sandy alluvial.

Nature of Crop.—First ratoon.

Age of Crop.—11 months.

Harvested.—October-November, 1949.

## **SUMMARY OF CROP YIELDS.**

| Variety.           | Cane per Acre. | C.C.S. in Cane. |
|--------------------|----------------|-----------------|
|                    | Tons.          | Per cent.       |
| Q.50 .. .. .       | <b>33.36</b>   | 14.94           |
| P.O.J.2878 .. .. . | <b>26.56</b>   | <b>16.15</b>    |
| Q.45 .. .. .       | <b>25.39</b>   | 15.25           |
| Q.28 .. .. .       | <b>25.29</b>   | 15.63           |
| Trojan .. .. .     | <b>21.77</b>   | 15.61           |
| Q.44 .. .. .       | <b>21.02</b>   | 13.16           |

## **SUMMARY OF RESULTS ON TWO FARMS.**

| Variety.            | Plant Crop.            |                         | First Ratoon Crop.     |                         | Summary of Two Crops. |                       |
|---------------------|------------------------|-------------------------|------------------------|-------------------------|-----------------------|-----------------------|
|                     | Average Cane per Acre. | Average Sugar per Acre. | Average Cane per Acre. | Average Sugar per Cane. | Total Cane per acre.  | Total Sugar per Acre. |
|                     | Tons.                  | Tons.                   | Tons.                  | Tons.                   | Tons.                 | Tons.                 |
| Q.50 .. .. .        | <b>52.56</b>           | <b>8.07</b>             | <b>33.36</b>           | <b>4.03</b>             | <b>85.92</b>          | <b>12.15</b>          |
| P.O.J. 2878 .. .. . | 42.80                  | 7.11                    | 26.56                  | <b>4.20</b>             | <b>69.36</b>          | 11.31                 |
| Q.45 .. .. .        | 44.91                  | 7.58                    | 25.39                  | <b>3.68</b>             | <b>70.30</b>          | 11.26                 |
| Q.28 .. .. .        | 42.14                  | 6.70                    | 25.29                  | <b>3.30</b>             | <b>67.43</b>          | 10.00                 |
| Trojan .. .. .      | 38.25                  | 6.44                    | 21.77                  | <b>3.40</b>             | <b>60.02</b>          | 9.84                  |
| Q.44 .. .. .        | 33.13                  | 4.81                    | 21.02                  | <b>2.56</b>             | <b>54.15</b>          | 7.37                  |

## DISCUSSION.

Ratooning was excellent in the six varieties of this trial. Q.50 and P.O.J.2878 were outstanding in early vigour and both Q.45 and Q.28 were close behind. The early growth of Trojan and Q.44 was disappointing but Trojan made fair growth late in the season. All varieties except Q.44 were in good conditions at harvest, the latter being pithy and lacking weight. Some Q.50 and Q.28 lodged in November as the result of high wind and heavy rain but the sugar content was not adversely affected. At harvest Q.50 significantly outyielded all others in tons of cane per acre but the sugar differences were not significant. Q.50 continues to maintain its superiority over all other canes in most Mackay district trials.

Olett Bros., Habana, via Mackay.

Soil Type.—Grey loam.

Nature of Crop.—Plant cane.

Age of Crop.—17½ months.

Harvested.—October, 1949.

## SUMMARY OF CROP YIELDS.

| Variety.           | Cane per Acre. | C.C.S. in Cane. | Sugar per Acre. |
|--------------------|----------------|-----------------|-----------------|
|                    | Tons.          | Per cent.       | Tons.           |
| B.174 .. .. .      | 38.63          | 16.74           | 6.47            |
| C.P.29/116 .. .. . | 38.06          | 16.59           | 6.32            |
| Q.50* .. .. .      | 37.50          | 13.66           | 5.12            |
| Co.290* .. .. .    | 36.75          | 11.18           | 4.11            |
| Q.28 .. .. .       | 33.84          | 13.71           | 4.64            |

\* Red Rot infection.

## DISCUSSION.

After a good germination in all varieties B.174 and C.P.29/116 established an early lead. Co.290 showed distress during the dry spring but recovered rapidly with the December rains. Heavy winds after the main growing season caused Q.50 and C.P.29/116 to lodge and both arrow heavily in the winter. At harvest there was bad red rot infection in Co.290 and to a lesser extent in Q.50, the sugar content of these canes being affected thereby. The performance of B.174 was surprisingly good but its general behaviour in many other district trials makes it an unattractive proposition. Its growth habit is so open that practically no cover is afforded to the ground and weed control is impossible.

W. Truscott, Barolin Road, Bundaberg.

Soil Type.—Red sandy loam.

Nature of Crop.—Plant.

Age of Crop.—14 months.

Harvested.—October-November, 1949.

## SUMMARY OF CROP YIELDS.

| Variety.           | Cane per Acre. | C.C.S. in Cane. | Sugar per Acre. |
|--------------------|----------------|-----------------|-----------------|
|                    | Tons.          | Per cent.       | Tons.           |
| C.P.29/116 .. .. . | 34.93          | 16.5            | 5.76            |
| B.50 .. .. .       | 33.12          | 16.2            | 5.37            |
| D.73 .. .. .       | 30.85          | 15.5            | 4.78            |
| D.9 .. .. .        | 26.12          | 16.7            | 4.36            |
| D.62 .. .. .       | 26.08          | 16.6            | 4.33            |

## DISCUSSION.

The three "D" seedlings and B.50 in this trial were final selections from their respective years and were planted in a final trial on an irrigated farm. Germination was good, being in all cases over 80 per cent. and the block was well cultivated and fertilized. The stooling of D.9 and B.50 was generally weak but early growth in C.P.29/116 and B.50 was vigorous. The C.P. arrowed heavily and side shot but at harvest it exceeded all others in both cane and sugar per acre. The other varieties have no particularly meritorious features and it is unlikely that they will be persisted with. C.P.29/116 is a very desirable variety in the southern areas and is eminently suitable for mid or late season harvesting.

## Gibson &amp; Howes Ltd., Bingera.

Soil Type.—Red forest loam.

Nature of Crop.—Plant.

Age of Crop.—14 months.

Harvested.—October, 1949.

## SUMMARY OF CROP YIELDS.

| Variety.           | Cane per Acre. | C.C.S. in Cane. | Sugar per Acre. |
|--------------------|----------------|-----------------|-----------------|
|                    | Tons.          | Per cent.       | Tons.           |
| Q.47 .. .. .       | 46.19          | 13.14           | 6.07            |
| Atlas .. .. .      | 42.00          | 13.44           | 5.64            |
| Q.49 .. .. .       | 41.94          | 12.49           | 5.24            |
| Trojan .. .. .     | 36.44          | 12.89           | 5.06            |
| Q.44 .. .. .       | 28.88          | 12.49           | 3.61            |
| P.O.J.2878 .. .. . | 24.88          | 12.75           | 3.17            |

## DISCUSSION.

The particular requirements of this irrigated plantation necessitate frequent varietal trials to ensure the propagation of the highest sugar producing varieties. In the previous year's trial programme Q.47 demonstrated superiority over four other prominent varieties and this trial confirms the results then obtained. As a one-year cane Q.47 has several outstanding characteristics not the least of which is its rather higher than average early sugar. P.O.J.2878 has been an established standard on this plantation for many years while Atlas and Q.49 are also varieties of some prominence. The production of over six tons of sugar per acre by Q.47 in 14 months is a good performance and should justify a high place in future plantings.

## Kendall Bros., Branyan, via Bundaberg.

Soil Type.—Red sandy loam.

Nature of Crop.—First ratoon.

Age of Crop.—11 months.

Harvested.—October, 1949.

## SUMMARY OF CROP YIELDS.

| Variety.        | Plant Crop.            |                 | First Ratoon Crop.     |                 | Summary of two Crops. |                       |
|-----------------|------------------------|-----------------|------------------------|-----------------|-----------------------|-----------------------|
|                 | Average Cane per Acre. | C.C.S. in Cane. | Average Cane per Acre. | C.C.S. in Cane. | Total Cane per Acre.  | Total Sugar per Acre. |
|                 | Tons.                  | Per cent.       | Tons.                  | Per cent.       | Tons.                 | Tons.                 |
| C.P.29/116 ..   | 30.12                  | 16.47           | 18.12                  | 15.90           | 48.24                 | 7.84                  |
| Q.28 .. .. .    | 29.03                  | 16.08           | 17.01                  | 15.10           | 46.04                 | 7.24                  |
| Q.47 .. .. .    | 27.26                  | 16.45           | 14.30                  | 15.60           | 41.56                 | 6.71                  |
| M.1900 Seedling | 19.87                  | 17.37           | 11.91                  | 16.30           | 31.78                 | 5.39                  |

## DISCUSSION.

This trial was originally designed to test the performance of some newer varieties against the old favourite M.1900 Seedling. There is no doubt that the later productions are more profitable varieties for the cane grower and there would not appear to be any justification for further plantings of M.1900 in this area. Its susceptibility to Fiji disease is an added reason why further propagation should not be approved.

## Sugar Experiment Station, Bundaberg, Block D.2.

Soil Type.—Red volcanic loam.

Nature of Crop.—First ratoon.

Age of Crop.—11 months.

Harvested.—November, 1949.

## SUMMARY OF CROP YIELDS.

| Variety.   | Plant Crop.            |                 | First Ratoon Crop.     |                 | Summary.             |                       |
|------------|------------------------|-----------------|------------------------|-----------------|----------------------|-----------------------|
|            | Average Cane per Acre. | C.C.S. in Cane. | Average Cane per Acre. | C.C.S. in Cane. | Total Cane per Acre. | Total Sugar per Acre. |
|            | Tons.                  | Per cent.       | Tons.                  | Per cent.       | Tons.                | Tons.                 |
| D.60 .. .. | <b>37.56</b>           | 16.35           | <b>31.72</b>           | 14.48           | <b>69.28</b>         | <b>10.71</b>          |
| D.73 .. .. | 30.86                  | 16.13           | 30.02                  | 15.33           | 60.88                | 9.57                  |
| D.15 .. .. | 33.64                  | 15.48           | 26.17                  | 12.79           | 59.81                | 8.55                  |
| D.65 .. .. | 34.64                  | 13.16           | 23.48                  | 13.60           | 58.12                | 7.82                  |
| Q.49 .. .. | 29.25                  | 16.93           | 23.48                  | 13.88           | 52.73                | 8.21                  |
| D.62 .. .. | 28.25                  | 15.75           | 18.63                  | 14.38           | 46.88                | 7.11                  |
| D.11 .. .. | 31.25                  | 14.95           | 18.55                  | 13.33           | 49.80                | 7.13                  |
| D.41 .. .. | 27.71                  | <b>17.45</b>    | 17.86                  | <b>15.46</b>    | 45.57                | 7.61                  |
| D.44 .. .. | 27.63                  | 16.48           | 17.32                  | 15.43           | 44.95                | 7.23                  |
| D.9 .. ..  | 25.32                  | <b>17.45</b>    | 17.16                  | 13.58           | 42.48                | 6.76                  |
| D.14 .. .. | 28.17                  | 16.70           | 13.16                  | 14.18           | 41.33                | 6.59                  |

## DISCUSSION.

After harvesting the plant crop the block was ratooned by tractor grubber and all varieties came away satisfactorily although D.9 appeared to have weak shoots. Growth was satisfactory at all stages and D.60 and D.73 maintained a good lead throughout the development of the crop. Despite their superiority to Q.49 they are not considered to be very promising canes although they will be given the opportunity to display their possibilities in further district plantings. D.60 produced 10.7 tons of sugar per acre in the aggregate of two crops but the two years were very favourable ones and it would be unwise to draw hasty conclusions.

**DISPERSED VARIETAL TRIAL ON FARMS OF  
D. REHBEIN, C. AND A. SEE, AND H. KILLER.**

**D. Rehbein, Duncraggan Road, Bundaberg.**

**Soil Type.**—Red volcanic loam.

**Nature of Crop.**—First ratoon.

**Age of Crop.**—11 months.

**Harvested.**—September, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.   |    |    |    |    |    |    |    | Cane per Acre. | Sugar per Acre. |
|------------|----|----|----|----|----|----|----|----------------|-----------------|
|            |    |    |    |    |    |    |    | Tons.          | Per cent.       |
| C.P.29/116 | .. | .. | .. | .. | .. | .. | .. | 37.17          | 13.95           |
| Co.301     | .. | .. | .. | .. | .. | .. | .. | 31.16          | 12.7            |
| Q.50       | .. | .. | .. | .. | .. | .. | .. | 30.04          | 16.3            |
| A.130      | .. | .. | .. | .. | .. | .. | .. | 23.78          | 14.6            |
| Q.28       | .. | .. | .. | .. | .. | .. | .. | 14.90          | 16.3            |

**C. and A. See, Seaview Road, Bundaberg.**

**Soil Type.**—Red volcanic loam.

**Nature of Crop.**—First ratoon.

**Age of Crop.**—11 months.

**Harvested.**—November, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.   |    |    |    |    |    |    |    | Cane per Acre. | C.C.S. in Cane. |
|------------|----|----|----|----|----|----|----|----------------|-----------------|
|            |    |    |    |    |    |    |    | Tons.          | Per cent.       |
| C.P.29/116 | .. | .. | .. | .. | .. | .. | .. | 34.38          | 13.00           |
| Co.301     | .. | .. | .. | .. | .. | .. | .. | 37.12          | 13.95           |
| Q.50       | .. | .. | .. | .. | .. | .. | .. | 33.62          | 15.80           |
| A.130      | .. | .. | .. | .. | .. | .. | .. | 36.62          | 14.20           |
| Q.28       | .. | .. | .. | .. | .. | .. | .. | 27.62          | 15.20           |

**H. Killer, Sandhills Road, Bundaberg.**

**Soil Type.**—Red volcanic loam.

**Nature of Crop.**—First ratoon.

**Age of Crop.**—12 months.

**Harvested.**—November, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.   |    |    |    |    |    |    |    | Cane per Acre. | C.C.S. in Cane. |
|------------|----|----|----|----|----|----|----|----------------|-----------------|
|            |    |    |    |    |    |    |    | Tons.          | Per cent.       |
| C.P.29/116 | .. | .. | .. | .. | .. | .. | .. | 34.36          | 14.95           |
| Co.301     | .. | .. | .. | .. | .. | .. | .. | 36.24          | 14.90           |
| Q.50       | .. | .. | .. | .. | .. | .. | .. | 28.86          | 15.20           |
| A.130      | .. | .. | .. | .. | .. | .. | .. | 31.74          | 12.70           |
| Q.28       | .. | .. | .. | .. | .. | .. | .. | 22.36          | 14.30           |



| Variety.           | Cane per Acre. | C.C.S. in Cane. |
|--------------------|----------------|-----------------|
|                    | Tons.          | Per cent.       |
| C.P.29/116 .. .. . | 41.50          | 15.9            |
| Q.28 .. .. .       | 33.00          | 15.35           |
| Q.52 .. .. .       | 32.12          | 8.25            |
| C.o.290 .. .. .    | 31.75          | 14.7            |

**Golchert Bros. Barolin Road, Bundaberg.**

Soil Type.—Red volcanic loam.

Nature of Crop.—Second ratoon.

Age of Crop.—12 months.

Harvested.—November, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.   |    |    |    |    |    |    | Cane per Acre. | C.C.S. in Cane. |
|------------|----|----|----|----|----|----|----------------|-----------------|
|            |    |    |    |    |    |    | Tons.          | Per cent.       |
| C.P.29/116 | .. | .. | .. | .. | .. | .. | <b>34.12</b>   | <b>15.1</b>     |
| Q.28       | .. | .. | .. | .. | .. | .. | 18.75          | 14.1            |
| Q.52       | .. | .. | .. | .. | .. | .. | 19.80          | 12.8            |
| Co.290     | .. | .. | .. | .. | .. | .. | 16.88          | 13.2            |

**SUMMARY OF RESULTS ON THREE FARMS.**

| Variety.     | Plant Crop.            |                         | First Ratoon Crop.     |                         | Second Ratoon Crop.    |                         | Summary of Three Crops. |                       |
|--------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|-------------------------|-----------------------|
|              | Average Cane per Acre. | Average Sugar per Acre. | Average Cane per Acre. | Average Sugar per Acre. | Average Cane per Acre. | Average Sugar per Acre. | Total Cane per Acre.    | Total Sugar per Acre. |
|              | Tons.                  | Tons.                   | Tons.                  | Tons.                   | Tons.                  | Tons.                   | Tons.                   | Tons.                 |
| C.P.29/116.. | <b>32.0</b>            | <b>4.54</b>             | <b>38.87</b>           | <b>5.70</b>             | <b>37.25</b>           | <b>5.88</b>             | <b>108.12</b>           | <b>16.12</b>          |
| Q.28 ..      | 25.6                   | 3.38                    | 31.55                  | 4.63                    | 24.71                  | 3.73                    | 81.86                   | 11.74                 |
| Q.52 ..      | 30.0                   | 3.93                    | 35.93                  | 4.85                    | 24.48                  | *                       | 90.41                   | ..                    |
| Co.290 ..    | 24.8                   | 2.69                    | 30.10                  | 4.00                    | 23.25                  | 3.25                    | 78.15                   | 9.94                  |

\* Red rot incidence in some Q.52 plots affected the C.C.S. to such a degree that the figures were not used.

**DISCUSSION.**

As was the case in the previous trial four of the thinner type varieties were compared for their relative performance on the drier red soils. In this second ratoon crop C.P.29/116 produced a crop considerably in excess of the other canes and was more than 50 per cent. better than Q.28 and Co.290 in sugar per acre. C.P.29/116 put up a very good showing in totalling over 16 tons of sugar per acre for the three crops. Since the planting of this trial in 1946 Q.52 has been discarded owing to high red-rot susceptibility. The popular C.P.29/116 retains its supremacy in most Bundaberg district trials and is an excellent mid-season and late harvesting variety.

**DISPERSED VARIETAL TRIAL ON FARMS OF APPS BROS. AND G. WHITTAKER.****Apps Bros. No. 1 Farm, Coolum Road, via Yandina.**

Soil Type.—Brown alluvial loam.

Nature of Crop.—Second ratoon.

Age of Crop.—12 months.

Harvested.—November, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.   |    |    |    |    |    |    | Cane per Acre. | C.C.S. in Cane. |
|------------|----|----|----|----|----|----|----------------|-----------------|
|            |    |    |    |    |    |    | Tons.          | Per cent.       |
| C.P.29/116 | .. | .. | .. | .. | .. | .. | <b>45.68</b>   | 13.00           |
| Q.28       | .. | .. | .. | .. | .. | .. | 40.29          | 12.04           |
| Q.47       | .. | .. | .. | .. | .. | .. | 39.15          | 13.19           |
| P.O.J.2878 | .. | .. | .. | .. | .. | .. | 31.07          | <b>14.15</b>    |



**N. H. Wellard, Bli Bli, Nambour.**

Soil Type.—Black silt loam.

Nature of Crop.—Standover first ratoon.

Age of Crop.—14 months.

Harvested.—November, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.            | Cane per Acre. |  | C.C.S. in Cane. |  |
|---------------------|----------------|--|-----------------|--|
|                     | Tons.          |  | Per cent.       |  |
| Vesta .. .. .       | 60.50          |  | 13.14           |  |
| Q.47 .. .. .        | 54.95          |  | 13.13           |  |
| Q.49 .. .. .        | 54.32          |  | 13.26           |  |
| Akbar .. .. .       | 47.40          |  | 13.95           |  |
| P.O.J. 2878 .. .. . | 43.74          |  | 13.35           |  |

**J. J. Colley, Maroochy River.**

Soil Type.—Brown alluvial loam.

Nature of Crop.—Standover first ratoon.

Age of Crop.—12 months.

Harvested.—September, 1949.

**SUMMARY OF CROP YIELDS.**

| Variety.            | Cane per Acre. |  | C.C.S. in Cane. |  |
|---------------------|----------------|--|-----------------|--|
|                     | Tons.          |  | Per cent.       |  |
| Vesta .. .. .       | 43.10          |  | 12.19           |  |
| Q.47 .. .. .        | 37.82          |  | 13.62           |  |
| Q.49 .. .. .        | 34.16          |  | 11.61           |  |
| Akbar .. .. .       | 35.16          |  | 12.26           |  |
| P.O.J. 2878 .. .. . | 35.04          |  | 12.40           |  |

**SUMMARY OF CANE YIELDS ON THREE FARMS.**

| Variety.            | Plant Crop.            | 1st. Ratoon.           | Summary of 2 crops.  |
|---------------------|------------------------|------------------------|----------------------|
|                     | Average cane per acre. | Average cane per acre. | Total cane per acre. |
|                     | Tons.                  | Tons.                  | Tons.                |
| Vesta .. .. .       | 56.51                  | 49.11                  | 105.62               |
| Q.47 .. .. .        | 52.56                  | 46.68                  | 99.24                |
| Q.49 .. .. .        | 54.53                  | 44.16                  | 98.69                |
| Akbar .. .. .       | 40.12                  | 40.38                  | 80.50                |
| P.O.J. 2878 .. .. . | 41.59                  | 37.39                  | 78.98                |

## SUMMARY OF SUGAR YIELDS ON TWO FARMS.\*

| Variety.           | Plant Crop.             | 1st. Ratoon.            | Summary.     |
|--------------------|-------------------------|-------------------------|--------------|
|                    | Average sugar per acre. | Average sugar per acre. | Total Sugar. |
|                    | Tons.                   | Tons.                   | Tons.        |
| Vesta .. .. .      | 7.43                    | 6.60                    | 14.03        |
| Q.47 .. .. .       | 6.48                    | 6.18                    | 12.66        |
| Q.49 .. .. .       | 6.99                    | 5.59                    | 12.58        |
| Akbar .. .. .      | 5.37                    | 5.46                    | 10.83        |
| P.O.J.2878 .. .. . | 5.75                    | 5.09                    | 10.84        |

\* Owing to the loss of some of the C.C.S. samples from Trevor's trial the tonnages have been summarised for the three farms but the sugar per acre for two farms only.

## DISCUSSION.

This trial was originally designed to evaluate the varieties as standover types. The plant crop was harvested at two years of age but the first ratoon was cut at one year. Vesta was the leading variety on two of the three farms and Q.47 on the third but the average of the three plots gave Vesta first place, as was the case in the plant crop. The aggregate of both crops showed that Vesta produced over 14 tons of sugar per acre while both Q.47 and Q.49 were over twelve and a half tons. Akbar and P.O.J.2878 were two tons of sugar lower in production. Vesta is a popular standover cane in the area and is a satisfactory type for Fiji disease resistance. As a two year cane it will be planted on much of the land previously reserved for P.O.J.2878.

## CANE GROWERS' VARIETY RETURNS.

The necessary forms to enable growers to submit this return have been despatched by all mills. It is desired to remind growers that this return should be submitted in duplicate to the mill to which their land is assigned before 31st March. Information regarding all varieties harvested or planted during 1949 and the area of each should be stated.

In past years some growers have not treated this matter seriously and consequently complete information has not been available from all mill areas. The figures supplied serve as a useful source of information in the compilation of statistics of varieties grown and serve to indicate how the newer canes are being grown and in some places replacing the older ones. We are therefore, appealing to growers to make sure that their returns are submitted and also to make the information as accurate as possible, since unreliable figures may give a false picture.

*This form is required under Section 16 of the Sugar Experiment Stations Acts and the penalty for failure to furnish the return may be up to £50.*

## Soil Fertility Investigations.

### RESULTS OF THE 1949 SEASON.

By L. G. VALLANCE.

**D**URING the year the work of soil testing by means of laboratory analysis and fertilizer trials was continued and the Bureau is pleased to acknowledge the assistance of those growers who co-operated in the setting out and harvesting of the season's fertilizer trials.

### SOIL FERTILITY SURVEYS.

The soil fertility survey work was continued and farms in the following districts were surveyed:—Fishery Falls, Mourilyan, Proserpine, North Isis, and Mount Bauple. Soil samples were taken from plant cane blocks on each property. These were analysed and the growers concerned have been advised of the results, together with the requisite fertilizer and liming recommendations. In addition 511 similar recommendations were forwarded to farmers in the Tully area as a result of the soil analytical work carried out in the Tully mill laboratory. The following table indicates the general fertility trend in the surveyed areas.

TABLE I.—SHOWING PERCENTAGE OF SOIL SAMPLES AT EACH FERTILITY LEVEL.

| District.        | Phosphate. |           |           | Potash    |           |           | Number Samples. |
|------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------------|
|                  | Low.       | Fair.     | Good.     | Low.      | Fair.     | Good.     |                 |
|                  | Per cent.  | Per cent. | Per cent. | Per cent. | Per cent. | Per cent. |                 |
| Fishery Falls .. | 7          | 16        | 77        | 64        | 26        | 10        | 31              |
| Mourilyan ..     | 7          | 14        | 79        | 72        | 26        | 2         | 43              |
| Proserpine ..    | 18         | 19        | 63        | 88        | 10        | 2         | 51              |
| North Isis ..    | 5          | 36        | 59        | 15        | 41        | 44        | 39              |
| Mount Bauple ..  | ..         | 25        | 75        | 62        | 38        | ..        | 16              |
| Tully ..         | 31         | 22        | 47        | 65        | 26        | 9         | 511             |
| Total ..         | 25         | 22        | 53        | 64        | 26        | 10        | 691             |

The figures are interesting in view of the indication that potash appears to be replacing phosphate as the major plant food requirement. Possibly this is a reflection of the use of high phosphatic fertilizers over many years.

Soil fertility surveys were first instituted in 1940 and, although the work was curtailed during the war years, some 24 surveys have now been completed. The results obtained have been of considerable value in providing a systematic evaluation of the fertilizer requirements of the areas surveyed. Many growers have been enabled to carry out a more efficient fertilizing programme since they have been advised, not only of the correct type of fertilizer necessary, but also of the amounts required per acre. Such information has been particularly valuable during the recent shortages of fertilizer and has also brought about a more economic use of this high priced commodity. This work will be continued, although, at the moment, it is unfortunately not possible

to increase the number of areas surveyed each year. The co-operation of Tully Mill in carrying out a large number of soil analyses is particularly appreciated and growers in that area have benefited considerably by the enterprise of the mill staff in this regard.

The opportunity is taken here to remind growers that soil samples from individual farms are tested free of charge for fertilizer and lime requirement. Any cane farmer who wishes to have his soil analysed may arrange for this to be done by taking the soil samples himself and forwarding them to this office (see details given on page 167 of this Bulletin) or by getting in touch with the local Bureau officer stationed in his district.

### FERTILIZER TRIALS.

#### Messrs. S. and P. Leonardi's Farm, Mossman.

**Soil Type.**—Old clay alluvial.  
**Age of Crop.**—17 months.

**Nature of Crop.**—Plant cane.  
**Harvested.**—September, 1949.

In this trial, which was carried out on a plant crop of Comus, three different levels of ammonium sulphate, superphosphate, and muriate of potash were used. These were as follows:—

1. Ammonium sulphate—nil.
2. Ammonium sulphate—200 lb. per acre.
3. Ammonium sulphate—400 lb. per acre.
4. Superphosphate—nil.
5. Superphosphate—200 lb. per acre.
6. Superphosphate—400 lb. per acre.
7. Muriate of potash—nil.
8. Muriate of potash—120 lb. per acre.
9. Muriate of potash—240 lb. per acre.

The superphosphate and potash were applied in the drill at planting, while the sulphate of ammonia was applied as a top dressing in two applications.

Harvest figures indicated that the addition of sulphate of ammonia and superphosphate had not brought about a significant increase in tons of cane per acre. However, the application of muriate of potash was responsible for increased tonnages and the yields for the different potash applications are as follows:—

| Muriate of Potash.<br>Lb. per Acre. | Yield of Cane.<br>Tons per Acre. |
|-------------------------------------|----------------------------------|
| Nil .. ..                           | 17.02                            |
| 120 .. ..                           | 20.20                            |
| 240 .. ..                           | 21.19                            |

This trial will now be ratooned to determine the effect of similar fertilizer applications on the ratoon crop.

#### Messrs. R. and M. Ridolfi's Farm, Meringa.

When the plant crop of this trial was harvested the previous year apparently the green manure crop that was ploughed in prior to planting supplied all the nitrogen that was necessary, since no response

was obtained to the application of sulphate of ammonia. However, this effect was not carried on to the first ratoon crop harvested this season and a good response was obtained to the sulphate of ammonia applied at ratooning.

Although the plant crop showed a response to superphosphate as is usual with red brown schist soils, there was no response to this fertilizer in the ratoon crop. Muriate of potash again did not increase the yield of cane.

### Mr. H. Wienert's Farm, Fishery Falls.

**Soil Type.**—Granitic Gravel.

**Nature of Crop.**—Plant cane.

**Age of Crop.**—17 months.

**Harvested.**—October, 1949.

In this trial, carried out on a plant crop of Cato, three different levels of sulphate of ammonia, muriate of potash and superphosphate were again used. The muriate and superphosphate were applied in the drill at planting while the sulphate of ammonia was applied as a top dressing in two applications.

A marked response was obtained from all three fertilizers, the heavier applications being more beneficial than the lighter applications. The following summary of the crop figures will illustrate this point:—

| Fertilizer (Lb. per Acre).   | Yield (Tons per Acre). |
|------------------------------|------------------------|
| No Sulphate of Ammonia ..    | 20.88                  |
| 200 Sulphate of Ammonia ..   | 24.21                  |
| 400 Sulphate of Ammonia ..   | 25.20                  |
| No Superphosphate ..         | 21.29                  |
| 200 lb. Superphosphate ..    | 21.75                  |
| 400 lb. Superphosphate ..    | 27.25                  |
| No Muriate of Potash ..      | 21.13                  |
| 120 lb. Muriate of Potash .. | 21.96                  |
| 240 lb. Muriate of Potash .. | 27.20                  |

Actually the most profitable fertilizer treatment was the application of 200 lb. of sulphate of ammonia plus 400 lb. of superphosphate plus 240 lb. of potash since this was responsible for an increased yield of 15.4 tons of cane per acre. This fertilizer application is approximately equivalent to  $4\frac{1}{2}$  cwt. of Sugar Bureau Mixture No. 3 plus one bag of superphosphate plus one bag of sulphate of ammonia, the cost of which is a little over £7.

The higher nitrogen application was not profitable since the 400 lb. sulphate of ammonia application gave only one ton of cane per acre greater yield than the 200 lb. dressing.

### Mr. S. Pagano's Farm, Moresby.

**Soil Type.**—Red schist.

**Nature of Crop.**—Plant cane.

**Age of Crop.**—12 months.

**Harvested.**—August, 1949.

An interesting feature of this trial is the effect of sulphate of ammonia on both cane yield and sugar content. The single and double dressings of sulphate of ammonia increased yields by 0.3 and 0.6 tons of sugar per acre, respectively. This excellent response to nitrogen



may be partly due to the fact that the previous ratoon crop was ploughed out only two months before this trial was planted, thus creating a temporary nitrogen deficiency in the soil.

Superphosphate application also gave a response both in yield of cane and sugar per acre. An increase in yield of 0.3 tons of sugar per acre was obtained from the application of 420 lb. of superphosphate. This response to superphosphate reached its maximum when double dressings of sulphate of ammonia and superphosphate were applied, since the results show that the fertilizer application consisting of 420 lb. of sulphate of ammonia plus 420 lb. of superphosphate brought an increased yield of nearly one ton (0.9) of sugar per acre.

There was no response to potash and it is apparent that a fertilizer low in potash and high in phosphate is required for this soil.

### Mr. R. T. Staniland's Farm, Glenisla, Proserpine.

**Soil Type.**—Alluvial sandy loam.

**Nature of Crop.**—Plant cane.

**Age of Crop.**—14 months.

**Harvested.**—July, 1949.

The results of this trial indicated that in tonnage of cane, nitrogen alone gave a significant response, whereas as far as sugar per acre is concerned, excellent increases were obtained by the application of both nitrogen and potash. The harvest figures show that dressings of 120 lb. and 240 lb. of potash increased yields by 0.58 and 0.73 tons of sugar per acre, respectively. The increases due to sulphate of ammonia in combination with the potash dressings were 0.39 tons and 0.71 tons of sugar for the 200 lb. and 400 lb. dressings. Actually in this trial a fertilizer application consisting of 400 lb. of sulphate of ammonia plus 240 lb. of potash per acre was responsible for an increased yield of 1.44 tons of sugar per acre.

### Mr. B. Anderson's Farm, Alloway.

**Soil Type.**—Red Forest.

**Nature of Crop.**—Second ratoon

**Age of Crop.**—20 months.

**Harvested.**—December, 1949.

This trial was designed to show the potash requirements of this soil and at the same time to give some indication as to whether heavier dressings of phosphate were required. The same amount of nitrogen was given to each plot, amounting to approximately 270 lb. of sulphate of ammonia per acre.

### RESULTS.

| Fertilizer Applied per Acre (Lb.) |                    | Crop Yields.   |                 |
|-----------------------------------|--------------------|----------------|-----------------|
| Superphosphate.                   | Muriate of Potash. | Cane per Acre. | Sugar per Acre. |
|                                   |                    | Tons.          | Tons.           |
| 167                               | None               | 17.64          | 2.17            |
| 167                               | 58                 | 21.06          | 2.84            |
| 167                               | 116                | 23.54          | 3.28            |
| 334                               | None               | 20.10          | 2.77            |
| 334                               | 58                 | 20.00          | 2.78            |
| 334                               | 116                | 23.52          | 3.22            |

**DISCUSSION.**

The figures indicate that the application of potash produced excellent results and that the presence of this fertilizer was more important than phosphate. The series of plots which received 116 lb. of potash per acre yielded 3.28 and 3.22 tons of sugar per acre as against 2.84 and 2.78 for those receiving 58 lb. of potash per acre.

The heavier dressing of phosphate (334 lb. per acre) did not produce significantly better results than the 167 lb. per acre dressing.

From the results of this trial, apparently the most suitable fertilizer to use is one which will give about 120 lb. of potash per acre, and in addition sufficient phosphate to ensure that this latter element does not become a limiting factor. A dressing of Sugar Bureau No. 3 at the rate of  $2\frac{1}{2}$  cwt. per acre would apply about 128 lb. of superphosphate and 118 lb. of potash. Sulphate of ammonia would, of course, be applied as a top dressing in the usual manner.

**Mr. T. Cave's Farm, Maroochy River, via Yandina.**

**Soil Type.**—Alluvial.

**Nature of Crop.**—First ratoon.

**Age of Crop.**—12 months.

**Harvested.**—September, 1949.

As in the plant crop, the results of which were published in this Bulletin (April issue, 1949) there was a marked response to sulphate of ammonia. The figures illustrating this are as follows:—

| Amount of Sulphate of Ammonia.<br>Lb. per Acre. |    |    |    |    | Yield of Cane.<br>Tons per Acre. |
|---|----|----|----|----|----------------------------------|
| Nil   | .. | .. | .. | .. | 30.75                            |
| 200   | .. | .. | .. | .. | 35.67                            |
| 400   | .. | .. | .. | .. | 39.72                            |

An increase of 4.92 and 8.97 tons per acre of cane resulted from the application of 200 lb. and 400 lb. respectively, of sulphate of ammonia, clearly a profitable return for the amount of fertilizer used.

There was no response to potash, but a slight increase, although not significant, resulted from the use of 200 lb. of superphosphate. This suggests that only light applications of potash and phosphate are necessary to maintain the fertility of this soil in so far as these two plant foods are concerned.

**FILTER MUD PLUS FERTILIZER TRIALS.**

Because of the interest in the use of filter mud as a fertilizing material two trials with this material were set out some time ago on Bundaberg and Mackay Experiment Stations. The results of the plant crop at Bundaberg and the plant and first ratoon crops at Mackay were discussed in the Quarterly Bulletin last year (April, 1949). The information obtained from the subsequent crops is as follows:—

**Trial on Bundaberg Station.**

This experiment was set out on red volcanic soil which is typical of a large portion of the Bundaberg district. The trial area was divided into portions to which varying amounts of filter mud were applied. These amounts were 0, 25 and 50 tons per acre.

Each mud treated area was further sub-divided into four portions and these received different amounts of fertilizer, viz., 0, 1, 2 and 3 cwt. per acre of Sugar Bureau Mixture No. 3. All plots, except those receiving no fertilizer, were top dressed uniformly with sulphate of ammonia at the rate of 2 cwt. per acre.

When the plant crop was harvested in 1948 the yield figures indicated that neither the application of mud nor the fertilizer dressing brought about an increase in tons of cane or sugar per acre. This was not unexpected since these red soils often do not require fertilizer for the plant crop, particularly when the preceding crops have been adequately fertilized. However, when the first ratoon crop was harvested during the 1949 season there was again no clear cut response to either fertilizer or mud. Nevertheless there were indications that the dressing of 2 cwt. of fertilizer and the 50 ton application of filter mud were beginning to have some beneficial effect. This trial will now be ratooned in order to ascertain whether these trends become more marked.

### Trial on Mackay Station.

This trial is similar to that at Bundaberg except that the amounts of mud used were 0, 20 and 40 tons per acre and, because of the different soil type, the fertilizer applied to the various portions was Sugar Bureau Mixture No. 1 at the rates of 0,  $1\frac{1}{2}$  and 3 cwt. per acre. These amounts of fertilizer were given to the plant and each ratoon crop. Only one application of mud was made, i.e., prior to planting. All plots except those receiving no fertilizer were top dressed with 2 cwt. of sulphate of ammonia.

From this trial the results of the plant and first and second ratoon crop are now available. These are as follows:—

| Treatment per Acre.  | Tons of Sugar per Acre. |               |                |        |           |
|--|-------------------------|---------------|----------------|--------|-----------|
|  | Plant.                  | First Ratoon. | Second Ratoon. | Total. | Increase. |
| Nil .. .. .  | 3.35                    | 4.44          | 1.66           | 9.45   | ..        |
| $1\frac{1}{2}$ cwt. fertilizer to each crop ..                   | 3.22                    | 4.97          | 2.20           | 10.39  | 0.94      |
| 3 cwt. fertilizer to each crop ..                                | 3.54                    | 5.16          | 2.12           | 10.82  | 1.37      |
| 20 tons mud .. .. .  | 3.63                    | 4.75          | 2.14           | 10.52  | 1.07      |
| 40 tons mud .. .. .  | 3.04                    | 5.32          | 2.15           | 10.51  | 1.06      |
| 20 tons mud, plus $1\frac{1}{2}$ cwt. fert. to each crop .. .. . | 3.80                    | 4.77          | 2.34           | 10.91  | 1.46      |
| 20 tons mud, plus 3 cwt. fert. to each crop .. .. .              | 3.55                    | 5.39          | 2.46           | 11.40  | 1.95      |
| 40 tons mud, plus $1\frac{1}{2}$ cwt. fert. to each crop .. .. . | 3.04                    | 5.40          | 2.66           | 11.10  | 1.65      |
| 40 tons mud, plus 3 cwt. fert. to each crop .. .. .              | 3.27                    | 5.59          | 2.58           | 11.44  | 1.99      |

The figures in the right hand column show the total increased amount of sugar per acre obtained over the three crops due to the various treatments. It will be seen that there is very little difference in the gain due to  $1\frac{1}{2}$  cwt. of fertilizer per crop, 20 tons and 40 tons

of mud applied prior to planting. It is interesting to note that the 40-ton application did not give better results over the three crops than the 20-ton application. The response due to 3 cwt. of fertilizer per crop was better than that of either of the above applications.

The best results were obtained when the fertilizer and mud were combined and it would appear that the beneficial effect of 20 tons of mud before planting plus an annual application of 3 cwt. of fertilizer was equally as good as that due to the 40 ton plus fertilizer treatment.

It is difficult to assess the cost of application of mud since this, of necessity, varies with local conditions, cost of transport, etc., however, it is clear that the 40 ton application has not justified itself when compared with the 20 ton application. The difference between the yield from the heavier application of fertilizer alone and in combination with 20 tons of mud is 0.58 tons of sugar over the three crops. This in some cases would be a doubtful proposition.

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## **"Greyback" Grub Control with Benzene Hexachloride.**

By R. W. MUNGOMERY.

**A**FTER years of experimentation directed towards the control of the greyback cane beetle and its grub, it is with much satisfaction that we are now able to confirm earlier reports that the comparatively new insecticide, benzene hexachloride, is an effective answer to what undoubtedly is the worst pest of sugar cane in Queensland. Not only has it been proven that the application of this insecticide ensures a high degree of grub control, but it has also been demonstrated that its use for this purpose is relatively inexpensive. Therefore it is now within the means of every canegrower to afford his crops complete protection against the inroads of this pest. As a consequence, in areas subject to annual infestation, there should no longer be any legitimate reason for the vast amount of crop destruction that hitherto followed in the wake of grub infestation.

Ever since it was first used for controlling grubs in Queensland the identity of benzene hexachloride has been somewhat obscured by the trade name "Gammexane" which was the only benzene hexachloride product available until the second half of 1949. Since then, however, a number of firms have commenced processing various benzene hexachloride dusts under such trade names as "Gamma-di," "Rudusts No. 13 and 14," or merely in the abbreviated form B.H.C. In all cases the toxic principle is the same, and except for variations in concentration, the only other point of difference between these dusts is in respect of the diluents or fillers which are used to ensure an even feed and discharge through the distributing machines.

It will be remembered that in the earliest attempts to control the pest a community-wide project of beetle collecting was inaugurated, but this scheme never achieved the degree of control which its proponents envisaged.

Late planting and the use of so-called resistant varieties proved useful to a degree, but the point was often reached when these measures failed dismally.

White arsenic applied in the furrow was sometimes so slow in effecting control that considerable damage occurred before grub populations were appreciably reduced, whilst in other instances the arsenic proved so toxic to plant growth that it ultimately proved as damaging as the pest whose activities it was expected to suppress. Carbon bisulphide which was used as a soil fumigant was the only effective means of combating the pest, but there were so many disabilities associated with its use that it never became popular for this purpose. The high cost of treatment, the risk of explosion and fire, its limited period of usefulness were factors which militated against its more extensive use, whilst the fact that the fumigation campaign had to be carried out during the sultry monsoonal period rendered it both distasteful and risky.

In our approach to the problem of control by means of benzene hexachloride, we proceeded along completely different lines. It was customary, where soil fumigation was involved, to decide on the area to be treated only after a survey had revealed the presence of a substantial population of grubs. In the case of benzene hexachloride treatment, however, the insecticide was applied before infestation actually took place and it involved treating those fields which from past experience stood a reasonably good chance of becoming heavily infested. That is to say it was applied more in the nature of a preventive.

The discovery, in our earliest field experiments with benzene hexachloride, that it would readily kill cane grubs was of considerable interest, but when it became known that this chemical was cheaper and easier to apply, more reliable and longer lasting than carbon bisulphide, growers received this information most enthusiastically.

However, before advocating its more extensive use, it became necessary to determine whether the insecticide was likely to prove toxic to cane and interfere in any way with its growth. In addition, details of its effect on the growth of legumes and its action on soil micro-organisms had to be investigated. In order to throw some light on these points, experimental plots were established under varied soil and climatic conditions, but in no instance could any noticeable adverse effect be detected on the growth of the cane or on the fertility of the soil when the insecticide was used in accordance with the rates and methods subsequently recommended for grub control.

Our original experiments with this insecticide quickly determined a suitable method and rate of application which in the light of subsequent experience is now regarded as being near the optimum. However, despite these early satisfactory findings, it was essential to determine whether similar results could be obtained on additional

soil types, and to explore whether other methods and rates of application were likely to prove more efficient. After assessing the data from further experiments it became evident that the best results were secured by applying the insecticide in the furrow after the cane had germinated, rather than by making broadcast applications. In addition, it was shown that greater efficiency was obtained if the insecticide were applied prior to the actual beetle flight, and the longer the application was delayed beyond this time the poorer became the control. A further point supporting these spring or early summer applications was the fact that as the season advanced and the cane grew taller and stoolled more heavily it became more difficult to apply the benzene hexachloride and incorporate it in the soil around the base of the cane stools.



FIG. 65.—Differences in ratoon vigour following application of benzene hexachloride ('Gammexane') to the plant crop. Cane on the right was treated and protected against grub attack whilst that on the left was untreated and badly damaged by grubs in the plant crop.

From the outset the trend of events indicated that benzene hexachloride remained toxic in the soil for a considerable period and that it killed the grubs as they contacted it when moving in towards the stools. From this it was natural to investigate how long the insecticide could remain effective without having to be bolstered up by supplementary dressings.

As further results of our experimental work came to hand, it was ultimately revealed that a dressing of 150 lb. of 10 per cent. dust applied to young plant cane in the furrow would protect not only the immediate crop, but also the two subsequent ratoons. Since it is normal practice in North Queensland to harvest three crops and then fallow the land, this quantity is now recommended as the correct amount to be applied to plant crops liable to infestation, so that

protection will be assured over the complete cycle. Where it is customary to harvest a plant and one ratoon crop the dressing could profitably be cut down to 125 lb. per acre, whilst 100 lb. is adequate where protection is required for one crop only. In some areas where ratooning practices are drastic and a considerable portion of each side of the stool is sliced away, it is necessary to restore the level of toxicity by applying a supplementary dressing at the rate of 50 lb. per acre immediately after ratooning.

For most effective grub control it is recommended that benzene hexachloride dust should be applied to the plant cane in a band about 15 inches wide along the furrows after the young cane has stood sufficiently and just before the soil is worked back towards the stool to level off the field. The actual time of this operation will obviously depend largely on the date of planting and the state of development of the crop, and therefore considerable elasticity is allowable in this regard. However, it will usually be found convenient to perform this work in conjunction with some routine cultivation between August and November. Where for some reason or other benzene hexachloride applications have been omitted for the plant crop, it is possible to confer protection on ratoon crops by ploughing away from each side of the row and applying the dust in the drills so formed.

In field trials in which benzene hexachloride dusts were applied in accordance with the above recommendations differences in yield of 8 to 10 tons per acre between treated and untreated plots were commonplace, whilst the differences in vigour of the following ratoons were none the less striking. (See figures 65 and 66.)



FIG. 66.—Persistence of toxic effect on cane grubs in a second ratoon crop in the Mulgrave area in June, 1949. Cane on left received 150 lb. of 10 per cent. "Gammexane" dust per acre in November, 1946, and was not further treated. The cane on right was not treated.

A number of fertilizer distributors have been adapted for applying these dusts, and they perform a very satisfactory job. However, in some areas a scarcity of suitable machines prompted some organisations to design and build their own distributing machines. These have been purchased by some of the Cane Pest and Disease Control Boards for use in their areas and it is customary to hire them out at a nominal fee to growers requiring them.



Up to the present a 10 per cent, benzene hexachloride dust manufactured on a pyrophyllite-rock phosphate base has been used almost exclusively for the control of cane grubs, but owing to the cheaper relative cost of the 20 per cent. dust, growers have been advised, where practicable, to change over to this latter product and use half the quantities recommended above. On this basis the cost of treatment should not exceed £1 10s. per acre per year—a cheap outlay for complete crop protection which this insecticide guarantees. So popular has this form of control become that during the past season approximately 900 tons of 10 per cent. dust was applied to North Queensland canefields for the purpose of protecting them against grubs. The magnitude of this control work is a true reflection of the absolute confidence placed by growers in the efficacy of benzene hexachloride as a grub destroyer.

Technical Communication, 1949, No. 4, which deals in a more comprehensive manner with the findings outlined above, has been prepared by the writer and will be available within a few months.

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## A Machine for Planting Velvet Beans.

BY H. G. KNUST.

THE value of growing legumes as a cover crop for the protection of cane lands during the fallow period and the beneficial results accruing therefrom has been very fully dealt with by King (1).

Velvet beans are rapidly increasing in popularity in the Southern district because of their drought resistant qualities and their resistance to bean-fly attack, and, as a consequence, demand for seed exceeds the supply.

As most growers sow their seed broadcast at the rate of about 45 lb. of seed per acre the writer decided to try an improvised planter and to plant in rows as recommended by the Bureau. This method was found to be highly successful and sowing rate was reduced to 12 lb. of seed per acre.

The planter (Fig. 67) consists of an 18-inch length of 1-inch galvanised water pipe fitted in the brackets which normally hold the scarifier tines to the frame of the cultivation assembly on a Farmall Model A.V. type tractor. The bottom of the pipe was cut away to overcome clogging by the soil as the pipe travelled through the ground; a funnel was fitted to the top of the pipe to facilitate dropping of the seed; a platform consisting of a board 4 feet long by 9 inches wide was attached to the cultivator frame by bolting the main members of the platform to a cross-piece which extends beneath longitudinal members of the cultivator frame, and a small sheet of old galvanised iron was fitted behind each tractor wheel to prevent dust blowing into the eyes of the man dropping the seed.



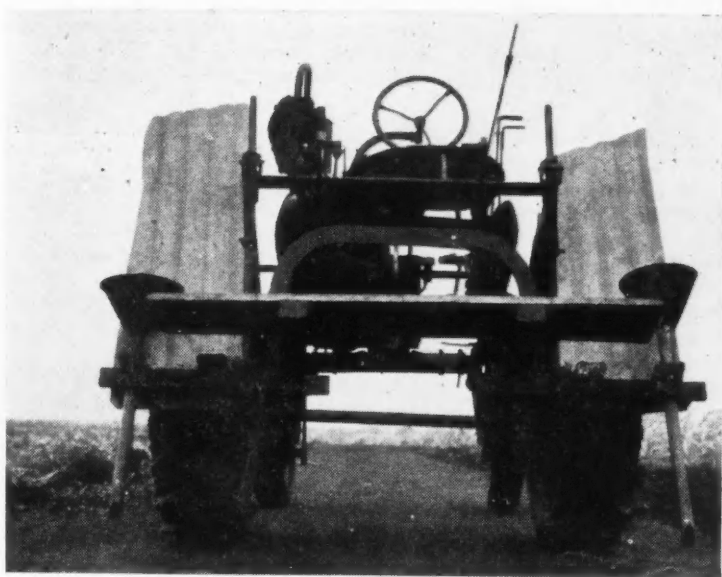


FIG. 67.—Illustrating the Velvet Bean planting attachment on a tractor.



FIG. 68.—The crop of Velvet Beans four weeks after planting.

With two men dropping the seed and one man driving the tractor planting rate was a shade better than one acre per hour in rows about 4 chains long. Tractor speed in low gear was about 2.5 miles per hour and depth of planting—which can be varied—from 2 inches to 3 inches.

Germination was satisfactory and four weeks after planting (Fig. 68) the stand of beans was quite good.

Points to be watched when this method of planting is practised are:—The planting tubes should be lowered gradually each time the tractor enters the field and the men dropping the seed should remove the soil from the pipe and clear it if it becomes clogged when being lowered into the ground. Seed should be thoroughly clean, any accidental dropping of bean husk into the tube is likely to cause clogging and consequent non-planting of that portion of the row travelled before the fault is discovered.

Growers who do not have cultivation equipment attached to their tractors, but have grubbers, can adopt this planting method by fitting the tubes to the rear of the grubber tines.

Distance between rows is governed by the soil type being planted, and can be greater in the open soil types than in the wetter closer alluvials where weeds and grass are inclined to grow faster. Usually one light scarifying of the interspaces after rain is sufficient to control weed growth long enough to enable the beans to completely cover the ground.

#### REFERENCE.

- (1) KING, NORMAN J. "Green Manuring and Soil Organic Matter." Farm Bulletin No. 10, Bureau of Sugar Experiment Stations.

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## THE TREATMENT OF CANE SETTS.

During the past few years several articles have appeared in this Journal regarding the progress made with experiments in the preplanting treatment of cane setts. All of the information available has now been collated and printed in the form of an advisory publication for cane growers. This publication is Farm Bulletin, No. 11, entitled "The Treatment of Cane Setts with Mercurial Solutions," by C. G. Hughes. Copies of the above are available to cane farmers desiring to obtain same by written application to the Director, Bureau of Sugar Experiment Stations, Brisbane, or to the various Sugar Experiment Stations.

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## BOUND COPIES CANE GROWERS' QUARTERLY BULLETIN.

In the July, 1949, issue of the Bulletin we offered bound copies of Volumes 9 and 10, and 11 and 12, to growers who desired same, at a small cost to cover binding. Two volumes are included in the one book for which the price is 5s. We still have supplies of these available and would like to remind growers who desire a copy and who may possibly have overlooked ordering, to do so without delay.

## PROCEDURE FOR TAKING SOIL SAMPLES.

Owing to differences in the fertility gradients of soil in different parts of a field, it is sometimes a difficult matter to obtain a sample which will truly represent the block of land under investigation and single samples taken at random are practically worthless. A number of sub-samples from different parts of the field under examination must therefore be taken and approximately equal weights of each mixed thoroughly to form the final sample. The number of sub-samples which should be taken and mixed to obtain such a representative sample will depend on the apparent variability of the soil but at least three samples should be taken and composited for the smallest area. For areas of 5 to 10 acres at least two samples per acre should be taken and composited.

One of the most convenient implements with which to sample the soil is a post hole digger, as this removes a complete portion in one operation. An ordinary  $1\frac{1}{2}$  auger is good, provided the soil is sufficiently moist to cling to it firmly. If these implements are not available, a square hole should be dug to a depth of 10 inches, and after cleaning out the loose earth, a slice about 2 inches to 3 inches thick taken down one side of the hole from top to bottom. Such a sub-sample should then be placed on a bag or piece of canvas. Other sub-samples (of approximately similar weights) should be taken and added to the first one on the canvas and all mixed thoroughly before making the final sample, which should approximate two pounds.

Soils which appear markedly different must never be mixed, but each sampled for separate analysis. To obtain the most useful information from the analysis of the soil, it is necessary to take the sample just before or just after a cane crop is harvested and before the fertilizer is applied to the next crop. Samples should be taken from the space between the rows where there is less likelihood of contamination occurring from a previous application of fertilizer. Fallow blocks should not be sampled since the results do not always give a true indication of the immediate fertilizer requirement.

Samples should be forwarded to the Director, Bureau of Sugar Experiment Stations, Department of Agriculture and Stock, William Street, Brisbane, and should be carefully marked. A letter should accompany all samples supplying information and details regarding the following:—

- Farmer's name and address;
- Drainage (good, bad, &c.);
- Surface soil (sandy, red volcanic, &c.);
- Subsoil (heavy clay, sandy, &c.);
- Class of crop now on field (Q.50 plant, &c.);
- Is green manuring practised?
- Usual fertilizer treatment;
- Has soil been limed?
- Reasons why analysis is required.

L.G.V.



